

SERVICE  
MANUAL

TT6200



**marantz®**

model TT6200

*Turntable*

Version	Destination
N	Europe (220V 50 Hz)
T	England (240V 50 Hz)
A	Australia (240V 50 Hz)
C/U	North America (120V 60 Hz)
E	General (110/220V 50/60 Hz)
AE	General (110/220V 50/60 Hz)

## TABLE OF CONTENTS

Title	Page
(1)Adjustments .....	2
(2)Troubleshooting .....	4
(3)Diagrams .....	6
(3)-1 Circuit Diagrams .....	6
(3)-2 Wiring Diagrams .....	8
(4)Exploded View .....	10
(5)Parts List .....	12
(6)Screws, Washers and Nuts .....	13
(7)Power Supply Printed Circuit Board .....	13
(8)Servo Controller Circuit Diagram .....	14

## (1) ADJUSTMENTS

### 1. Tools required for adjustment

- (1) Phillips-head screwdrivers (for M3 and M4)
- (2) Slotted-head screwdrivers (medium and small sizes)

#### Caution for adjustments

- (1) Plug off the AC power supply cord.
- (2) Return the tonearm to tonearm rest and fix the tonearm to the tonearm rest with the lock-lever.
- (3) Remove the turntable platter and mat.
- (4) Set the cueing knob to the ▽ position.

### 2. Turntable platter height and level adjustments

- (a) Install the turntable in a servicing jig and remove the turntable mat and platter, if installed. Place the turntable upside down to remove bottom cover (Fig. 1).
- (b) Remove with a Phillips-head screwdriver the eight screws which hold the bottom base. (Fig. 2)
- (c) Re-set the unit for normal use on the table.
- (d) Remove the transit screws (red). (Fig. 3)
- (e) Replace the turntable platter, mat and install a record. Move the turntable shaft by your hand vertically and horizontally to make sure that the sub-chassis is suspended from the cabinet.
- (f) Measure from the surface of the cabinet to the height of the installed record. This dimension should be within 20.5–22.0 mm (0.807–0.870 in.). Adjust the sub-chassis suspension screws to acquire this distance. Refer to Fig. 5.

### 3. Stylus clearance adjustment

- (a) Set the cueing knob to ▽ position and move the tonearm over the record surface (Fig. 6). The clearance between the stylus point and the record should measure between 6–10 mm (0.24–0.39 in.). This dimension is set by screw A (Fig. 6).
- (b) Move the tonearm to the end of the record and slowly rotate the turntable platter until the tonearm starts returning. Stop the platter rotation when the tonearm is in the approximate position as above. Again measure the distance between the stylus point and the record surface. This measurement should be approximately the same clearance 6–10 mm (0.24–0.39 in.). If the height needs to be adjusted, adjust screw B (Fig. 6).

### 4. Auto-return ratchet adjustment

- (a) Adjust the gap between the turntable gear hook (Fig. 7) and the ratchet trigger for 0.3–0.4 mm (0.012–0.015 in.) by turning the adjusting pin.

### 5. Auto-return adjustment

- (a) Set the cueing knob to the ▽ position.
- (b) Move the tonearm to the end of the record disc so that the end of the program is just occurring. Rotate the adjusting screw so that the ratchet trigger does not engage the turntable gear hook until complete record ends (Fig. 8).
- (c) After this adjustment, check that the tonearm returns at the end of the completed program on the disc. We recommend to use a test record comparable to stock No. RG-800 for this check.

### 6. Seesaw arm assy. adjustment

- (a) Remove turntable platter and mat. Place turntable in a servicing jig and turn turntable upside down.
- (b) Rotate the drive gear in direction of normal play. Continue gear rotation until seesaw arm assy. is aligned as shown in Fig. 9.
- (c) Adjust seesaw shaft for dimension at point "A" in Fig. 10 1.0–1.5 mm (0.040 – 0.060 in.). After this adjustment tighten lock nut.

### 7. Start-switch adjustment

- (a) Set start/stop knob to start position.
- (b) Adjust gap between operating plate assy actuator and switch contact for dimension specified in Fig. 11. Note that two different types of micro-switches can be used during model assembly. Determine vendor type micro-switch and adjust to dimension specified.

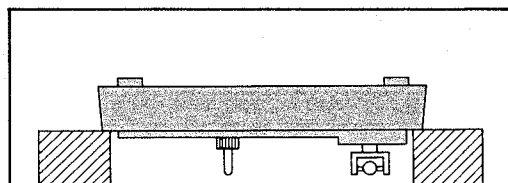


Fig. 1

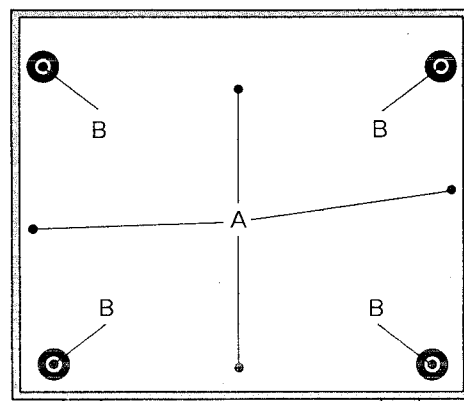


Fig. 2

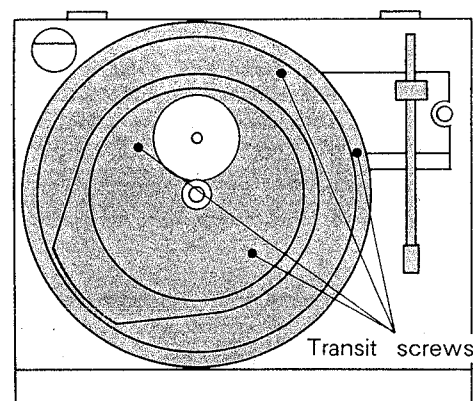


Fig. 3

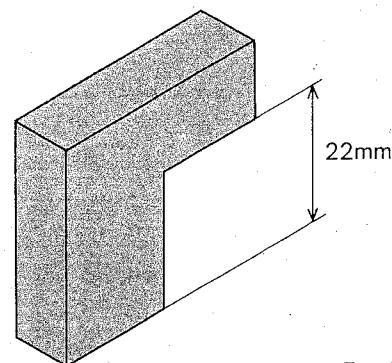


Fig. 4

## 8. Stop-switch adjustment

- Return tonearm to its rest and lock in place.
- Adjust gap between tone arm fixing plate and micro-switch for dimension specified (Fig. 12). Note that two different vendor type micro-switches can be used for this model. Determine vendor type and adjust to dimension specified.

## 9. Lead-in adjustment

- Check to see that the tonearm fixing plate assy. is in the condition as shown in Fig. 12 when the tonearm returns to tonearm rest.
- Set the lead-in adjusting pin to the position as shown in Fig. 13.
- Place the LP (30cm) record. Set the size-selector knob to 30 and the speed selector knob to 33.
- Set the cueing knob to the  $\nabla$  position and start-stop knob to the start position. Slowly rotate the turntable platter so that tonearm moves to the record.
- Rotate the adjusting pin for 30cm in Fig. 13 so that stylus falls onto the first non-sound grooves of the record upon automatic start.
- Place the EP (17cm) record. Set the size-selector knob to 17 and the speed selector knob to 45.
- Set the cueing knob to the  $\nabla$  position and start-stop knob to the start position. Slowly rotate the turntable platter so that tonearm moves to the record.
- Rotate the adjusting pin for 17cm in Fig. 13 so that stylus falls onto the first non-sound grooves of the record upon automatic start.
- If stylus set-down position can not be adjusted within the possible extent of rotation of adjusting screws, adjust the position of tonearm fixing plate after checking that tonearm has been mounted securely.

## 10. Speed adjustment

- Plug in AC power cord.
- Set the pitch control knob to the center.
- Set cueing knob to  $\nabla$  position and move tonearm over the turntable platter. Turntable platter should be rotating. Adjust variable resistors (Fig. 14) so that strobe index on the edge of platter stops and holds completely still. Speed should be checked or adjusted for both modes (33 and 45 rpm).

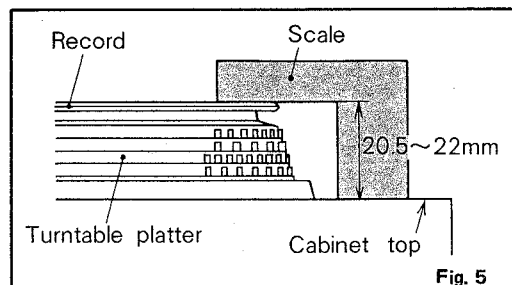


Fig. 5

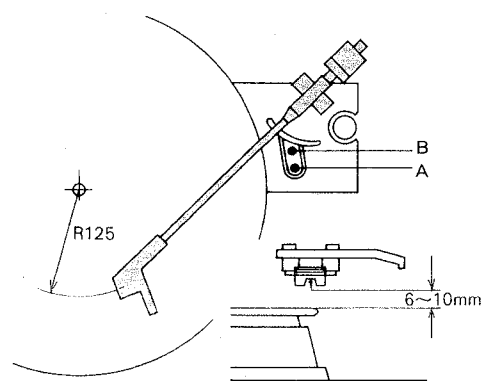


Fig. 6

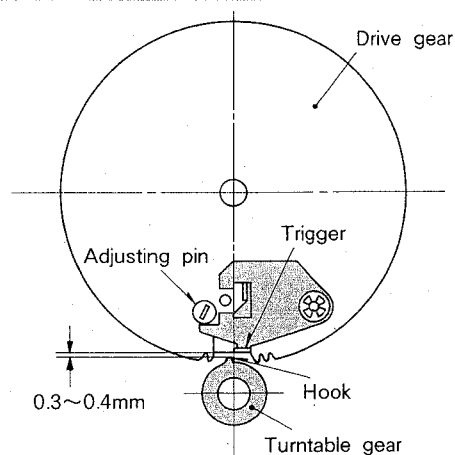


Fig. 7

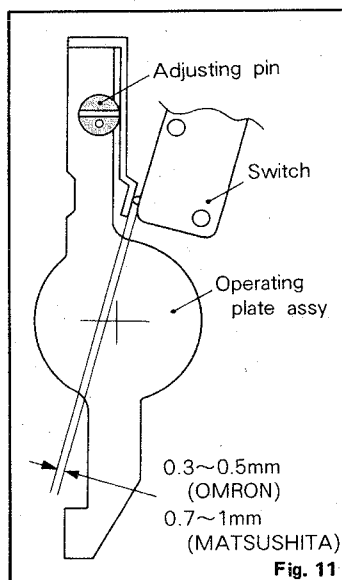


Fig. 11

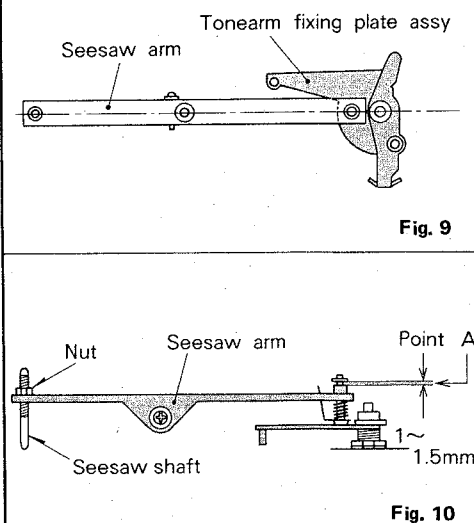


Fig. 9

Fig. 10

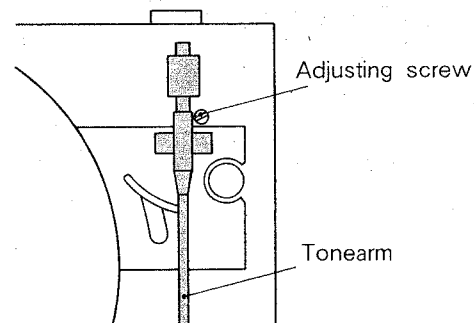


Fig. 8

## (2) TROUBLESHOOTING

### 1. The tonearm will not automatically start.

Check to see that turntable platter starts rotation when start/stop knob is moved to start position.

[No: See next step (2).

[Yes: Check to see that drive gear will rotate.

[Yes: Check to see that moving cap assy. moves connecting to tonearm fixing plate.

[Yes: Tonearm sensitivity on horizontal movement is not enough.

[No: Moving cap is removed or grease is adhered to the cap.

[No: Move the start/stop knob to stop position. Check to see that drive gear rotates when turntable shaft is rotated by hand.

[No: Seesaw shaft is out of the groove in drive gear.

[Yes: Check to see that drive gear is correctly mounted referring to Adjustment 4.

[Yes: Ratchet is not correctly mounted or ratchet is defective.

[No: Moving plate is not correctly mounted or moving plate is defective.

### 2. The turntable platter will not rotate even though start/stop knob is moved to start position.

Check to see that turntable platter starts rotation when tonearm is moved above the record by hand.

[Yes: Check to see that the gap between operating plate and microswitch is adequately adjusted.

[Yes: Microswitch is defective.

[No: Adjust the gap.

[No: Check to see that the voltage is supplied between (3) and (4) terminals in Power supply printed circuit board.

[No: AC power supply cord is defective.

[Yes: Check to see that the voltage is supplied to the primary terminal of power transformer.

[No: Fuse or microswitch is defective.

[Yes: Check to see that the voltage is supplied between (16) and (17) terminals.

[No: Power transformer is defective.

[Yes: Check to see that the voltage is supplied between (11) and (12) terminals.

[Yes: Motor is defective.

[No: The rectification circuit is defective.

### 3. The tonearm will not automatically return.

Check to see that the gap between turntable gear and ratchet is adequate referring to Adjustment 4.

[No: Adjust the gap.

[Yes: Check to see that tonearm returns when tonearm is moved to the most inner position of turntable.

[No: Tonearm fixing plate assy. is not correctly mounted, or drive gear assy. is not laterally mounted.

[Yes: Adjust return position referring to Adjustment 5.

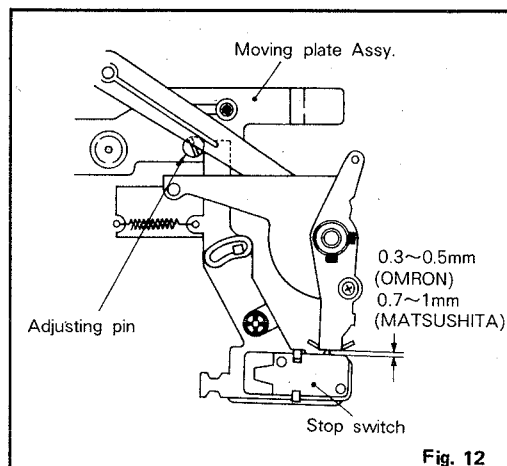


Fig. 12

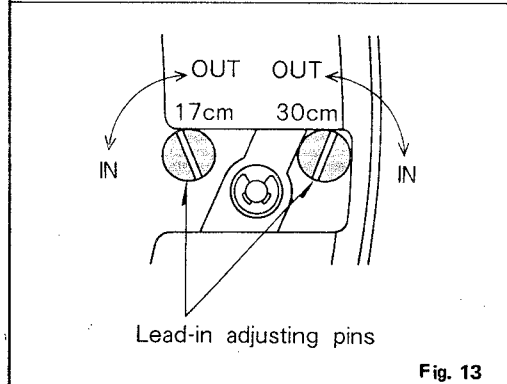


Fig. 13

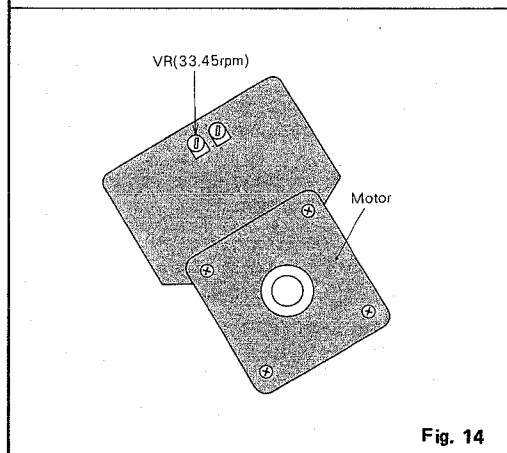


Fig. 14

4. The turntable platter will not stop rotating.  
Check to see that the knob of microswitch is sufficiently pushed by tonearm fixing plate assy. when tonearm returns to tonearm rest.

[No: Tonearm fixing plate assy. is not correctly mounted.  
[Yes: Check to see that the gap between tonearm fixing plate assy. and microswitch is adequate referring to Adjustment 8.  
[No: Adjust the gap.  
[Yes: Microswitch is defective.

5. The stylus set-down position is not correct on automatic start.  
Check to see that the position of cam for automatic start is correct referring to Adjustment 9.

[No: Return tonearm to tonearm rest and adjust the position of cam.  
[Yes: Check to see that the mounting position of cartridge is correct.  
[No: Adjust the position of cartridge.  
[Yes: Adjust the position of tonearm fixing plate assy.

6. The strobe light will not turn on.  
Check to see that the supplied voltage between (6) and (8) terminals is adequate when tonearm moves above the record.

[Yes: Neon lamp is defective.  
[No: Resistor for voltage adjustment is defective.

7. No sound from the speaker.  
Remove headshell. Touch the upper two terminals (L+ and R+) at the end of the tonearm with a metallic screwdriver and listen for the speaker to produce a humming noise. (Fig. 15)

[Yes: Cartridge or headshell lead-wires is defective.  
[No: Perform continuity test between tonearm end and output shielded cord on dead channel. (Fig. 16)  
[Yes: ⊕ and ⊖ cables are not isolated.  
[No: Plug of output shielded cord or terminal is wrong connected. Perform continuity test of input terminal of amplifier (receiver).

8. The tonearm restarts after automatic return even though repeat knob is placed to OFF.  
Check to see that the gap between ratchet and turntable gear is adequate referring to Adjustment 4.

[No: Adjust the gap.  
[Yes: Check to see that return arm returns to original position after that return arm is pushed by drive gear.  
[No: The drive gear is not laterally mounted.  
[Yes: The return arm is connecting with other parts.

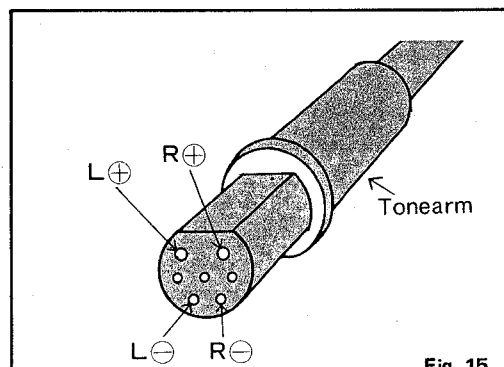


Fig. 15

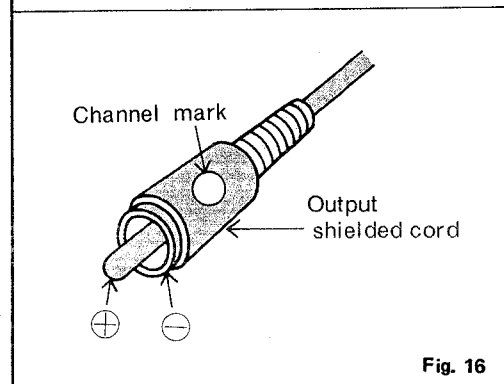
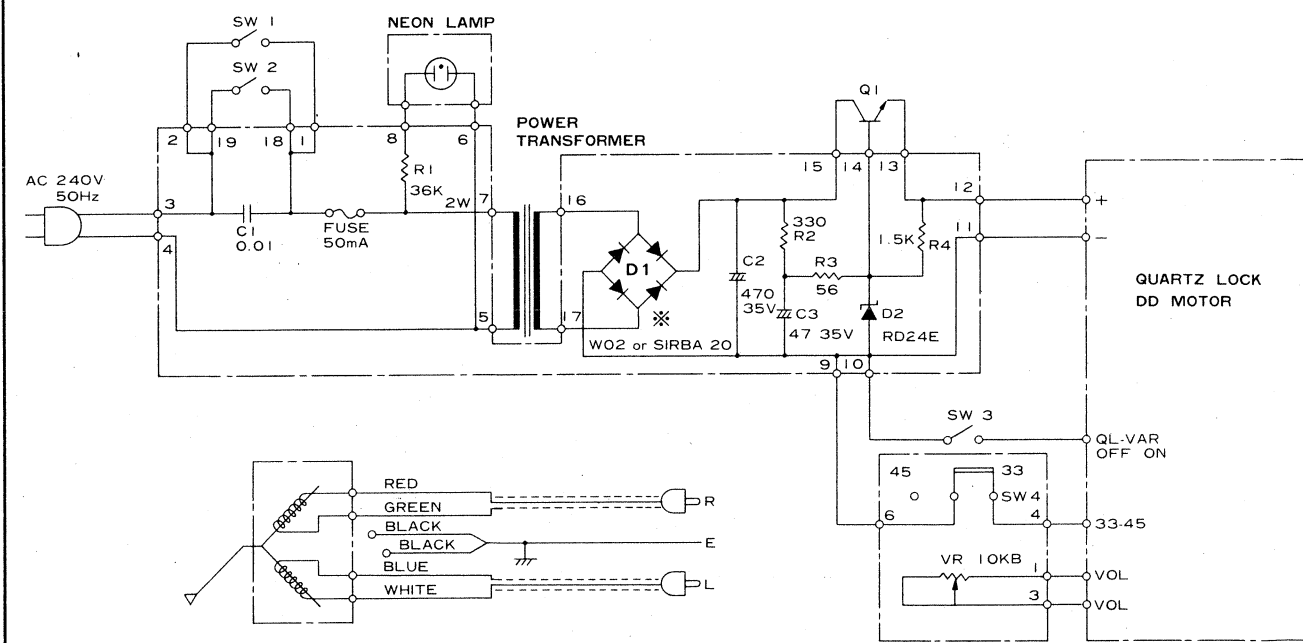


Fig. 16

### (3)-1 Circuit Diagrams

The schematic diagram illustrates the electrical circuit for a neon lamp. The power source is AC 220V 50Hz. The circuit includes a fuse (50mA) and a neon lamp (18K, R5, C4 0.01). The power transformer (18K/1W) is connected to the AC input. The secondary winding of the transformer is connected to a diode bridge (D1, WO2 or SIRBA 20). The output of the diode bridge is connected to a diode (D2, RD24E) and a quartz lock motor (DD MOTOR). The motor is controlled by a switch (SW 3) and a volume control (VR 10KB). The circuit is divided into sections for the neon lamp, power transformer, diode bridge, and motor control.

Version T;A



The schematic diagram illustrates the electrical circuit for a Quartz Lock DD Motor. The circuit is divided into two main functional areas: the power supply and the motor control section.

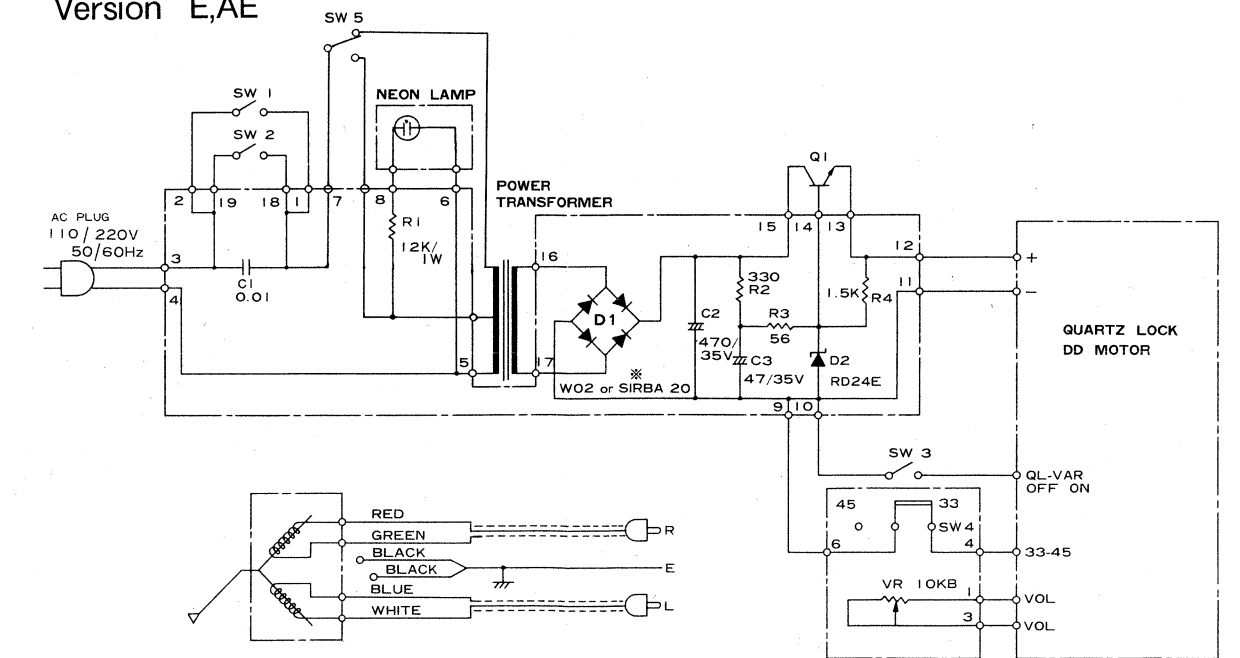
**Power Supply Section:**

- AC Input:** The circuit is powered by an AC 120V 60Hz source.
- Transformer:** A power transformer is used to step down the voltage. The primary is connected to terminals 3 and 4. The secondary has terminals 5, 6, 7, and 8.
- Neon Lamp:** A neon lamp is connected across terminals 6 and 8.
- Rectification:** A diode bridge rectifier (D1) is connected to the secondary terminals 6 and 7. The output of the rectifier is connected to terminals 9 and 10.
- Filtering:** A 330 ohm resistor (R2) and a 470 35V capacitor (C2) are connected in parallel across the rectifier output (terminals 9 and 10).
- Transistor:** A transistor (Q1) is connected with its base to terminal 13 and its emitter to terminal 14. The collector is connected to terminal 15.
- Diode:** A diode (D2) is connected with its cathode to terminal 12 and its anode to terminal 11.
- Resistors:** A 1.5K resistor (R4) is connected between terminals 12 and 11. A 47 35V capacitor (C3) is connected between terminals 11 and 10.

**Motor Control Section:**

- Motor:** The Quartz Lock DD Motor is connected to the output of the power supply (terminals 9 and 10).
- Control:** The motor is controlled by a quartz lock (QL) and a variable resistor (VR). The quartz lock is connected to the motor and the variable resistor. The variable resistor is connected to the motor and the quartz lock.
- Switches:** A switch (SW 3) is connected to the motor and the quartz lock. A switch (SW 4) is connected to the variable resistor and the quartz lock.
- Labels:** The motor is labeled "QUARTZ LOCK DD MOTOR". The variable resistor is labeled "VR 10KB". The quartz lock is labeled "QL-VAR OFF ON".

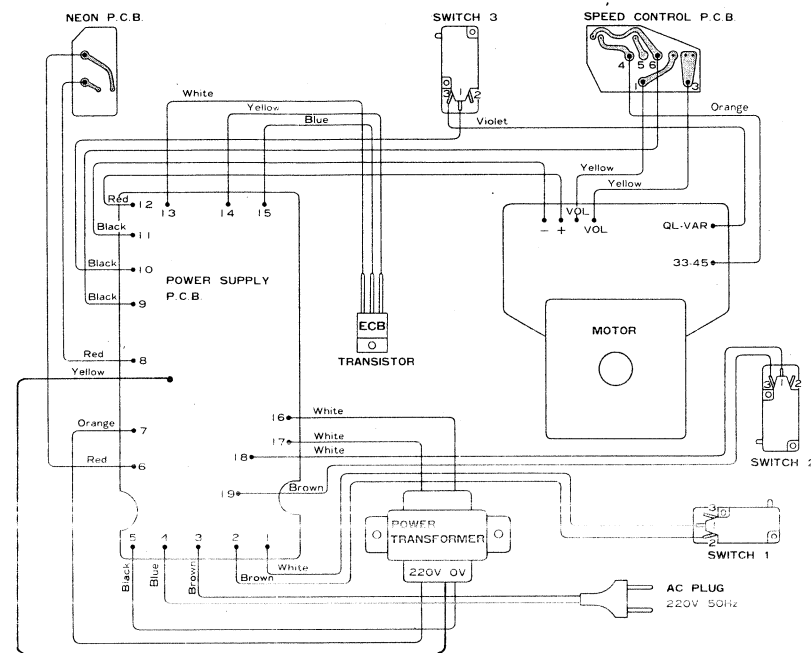
Version E,AE



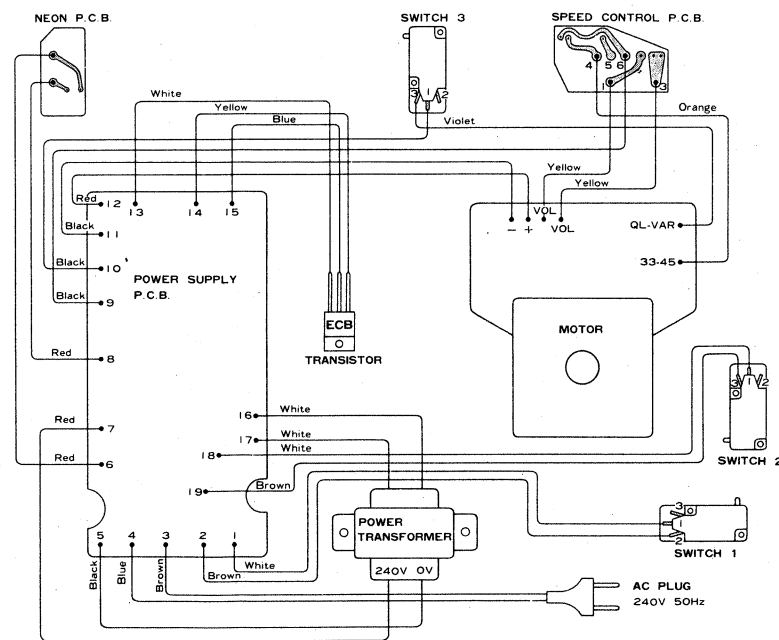
7 ●

(3)-2 Wiring Diagrams

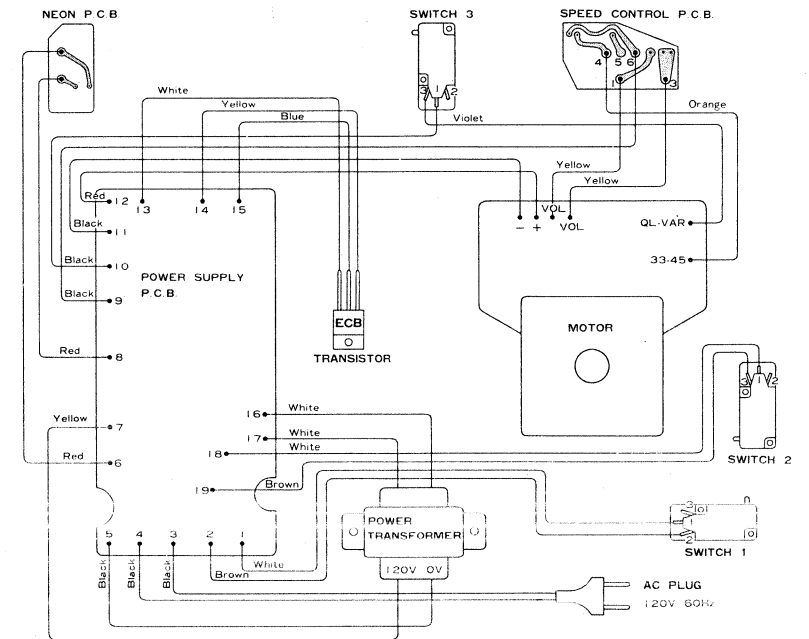
Version N



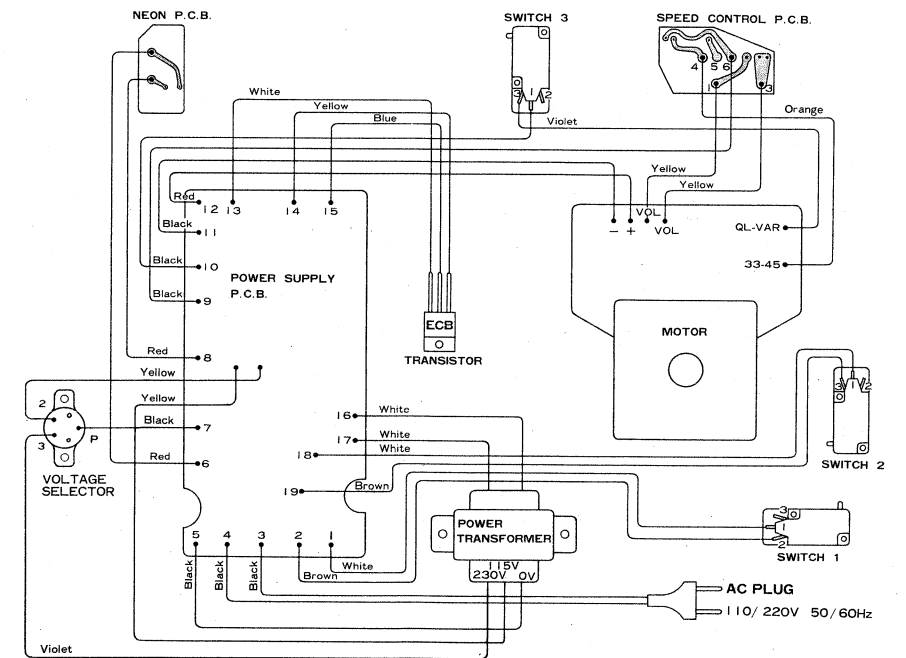
Version T,A



Version C/U

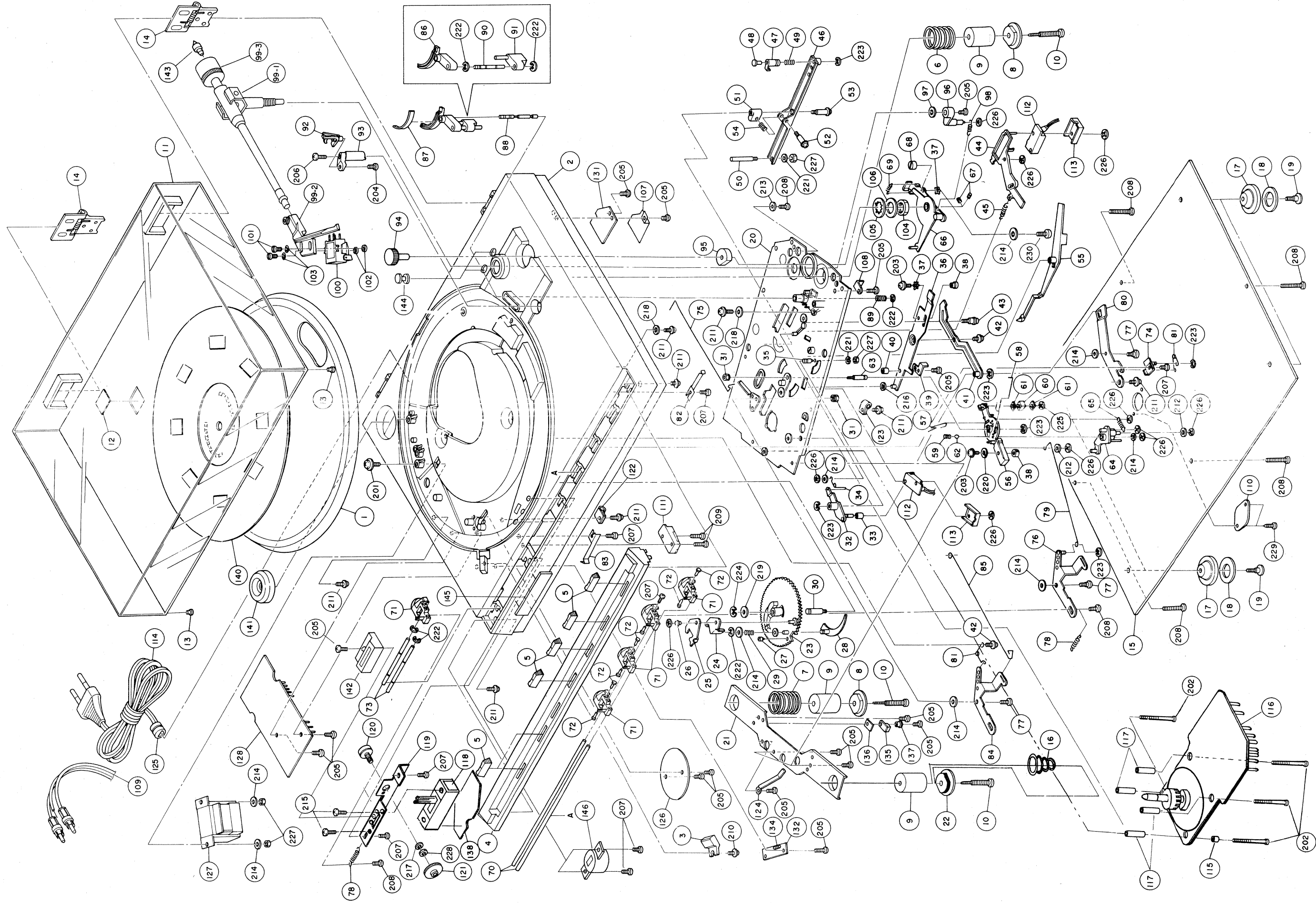


Version E,AE





(4)EXPLODED VIEW



## (5) PARTS LIST

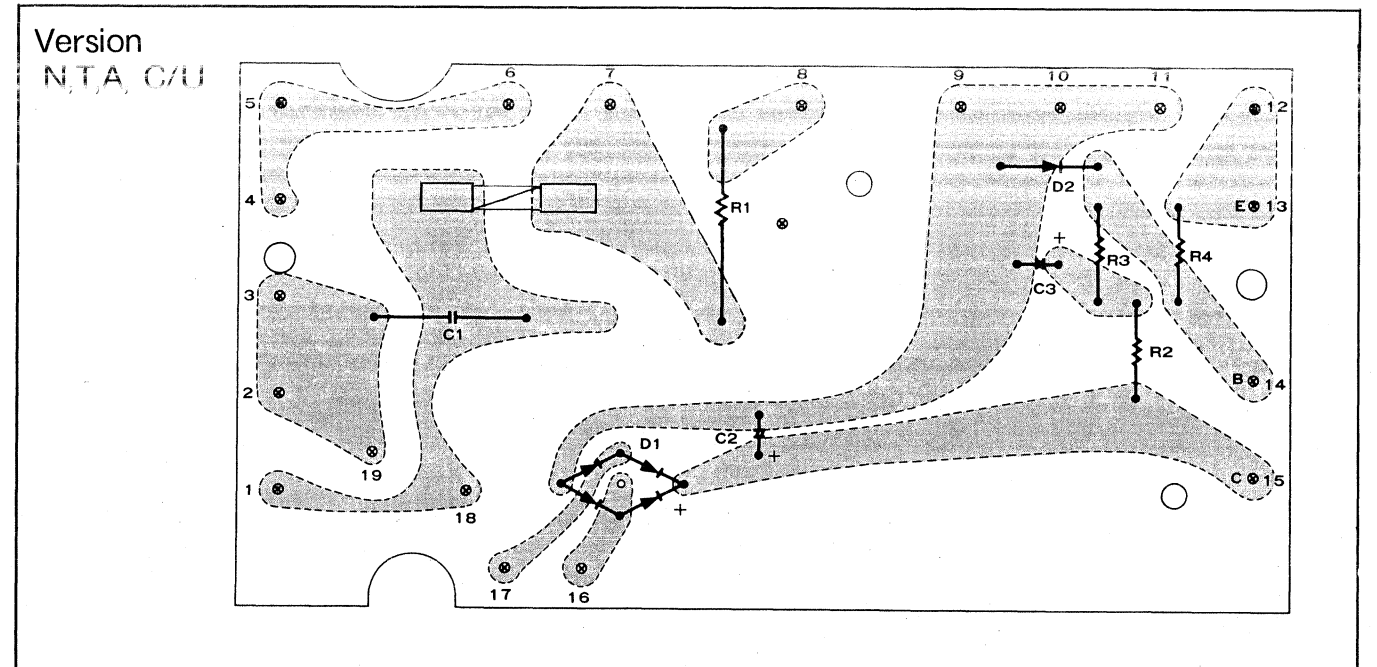
Version	Destination
N	Europe (220V 50 Hz)
T	England (240V 50 Hz)
A	Australia (240V 50 Hz)
C/U	North America (120V 60 Hz)
E	General (110/220V 50/60 Hz)
AE	General (110/220V 50/60 Hz)

Ref. No.	Parts No.	Description	Version	Ref. No.	Parts No.	Description	Version
1	2045101CEC	Turntable platter	N.E.T.A. C/U, AE.	99-1	3164202CEC	Tonearm	N.E.T.A.
2	1004824CEC	Cabinet		99-1	4834601CEC	Tonearm	C/U.
3	4796701CEC	Strobe filter		99-2	4834600CEC	Headshell	N.E.T.A.
4	2086303CEC	Control plate	N.E.T.A. C/U.	99-3	4733300CEC	Headshell	C/U.
5	4834500CEC	Knob		100	4837400CEC	Counterweight	N.E.T.A.
6	4799600CEC	Float spring		101	2420111313	Cartridge mounting screw	
7	2510214000	Float spring	N.E.T.A.AE. C/U.	102	4321300CEC	Cartridge mounting nut	
8	2210611300	Holder		103	4321400CEC	Cartridge mounting washer	N.
9	2520512900	Cushion		104	4728400CEC	Nut M12	
10	2420121800	Screw	N.	105	2420320200	Washer	
11	2090801CEC	Dust cover		106	4655600CEC	Washer	N.E.T.A.AE. C/U.
12	4835600CEC	Dust cover logo		107	4780500CEC	Shield cover	
13	4420500CEC	Dust cover cushion	N.E.T.A.AE. C/U.	108	4237921520	Terminal lug	N.T.A.
14	4786900CEC	Hinge		109	3132403CEC	Output shielded cord	
15	3152601CEC	Bottom base		110	3185200CEC	Output shielded cord	N.T.A.
16	4815100CEC	Float spring	N.T.A.	111	4433600CEC	Blind	
17	4783700CEC	Insulator		112	4231921995	Microswitch	
18	4783701CEC	Insulator	N.T.A.	113	4231921993	Microswitch	E.C/U.AE.
19	4783800CEC	Felt		114	4231921994	Microswitch	
20	4797400CEC	Screw		115	4231921991	Microswitch	N.T.A. E.C/U.AE.
21	2090902CEC	Subchassis	N.	116	2140110300	Cover	
22	3138100CEC	Spring mounting plate		117	4243200071	AC power supply cord	
23	4815800CEC	Holder	E. AE.	118	4771100CEC	AC power supply cord	T.
24	2411011500	Drive gear		119	3136803CEC	AC power supply cord	
25	2412211100	Ratchet		120	4771001CEC	AC power supply cord	A. C/U.
26	2412212100	Ratchet	N.	121	4756200CEC	AC power supply cord	
27	2410712900	Ratchet collar		122	4712106CEC	Spacer	N.
28	2410918500	Pin	E. AE.	123	2095000CEC	Motor assy.	
29	0602811000	Cam assy.		124	4825100CEC	Spacer	
30	2510121700	Spring	T.	125	3150400CEC	Slide switch	A. C/U.
31	2410627100	Shaft		126	4810600CEC	Variable resistor mounting plate	
32	2420216301	Nut	N.	127	4222201220	Variable resistor	E. AE.
33	4786500CEC	Reversed lever assy.		128	4347902CEC	Pitch control knob	
34	4792400CEC	Sleeve		129	2360812400	Clamp wire	N.T.A.
35	4791900CEC	Spring	E.C/U.AE.	130	2360812405	Clamp wire	
36	2410626200	Shaft		131	0301610400	Clamp wire assy.	N.T.A.
37	4786700CEC	Moving plate assy.	N.	132	2611121300	Bushing	
38	2420317501	Wave washer		133	4442100CEC	Strain relief	N.T.A.
39	2412412200	Cam		134	4351701CEC	Blind	
40	2410828700	Plate	N.	135	3138800CEC	Power transformer	E. AE.
41	2420836500	Spacer		136	3162800CEC	Power transformer	
42	0600914300	Lead-in arm assy.		137	3162400CEC	Power transformer	C/U.
43	2420121000	Screw	T.A.	138	3155100CEC	Power PCB assy.	
44	2420113400	Screw		139	3156801CEC	Power PCB assy.	
45	2410828800	Switch plate	N.T.A.	140	3165600CEC	Power PCB	C/U.
46	4792300CEC	Spring		141	3161600CEC	Power PCB	
47	0600914500	Seesaw arm assy.		142	XB1183ACEC	OMF resistor 18 Kohm 1W	N.T.A.C/U.
48	0602711800	Moving pole assy.	E. AE.	143	XB1363ACEC	OMF resistor 36 Kohm 2W	
49	2410210400	Lifter cap		144	XB1123ACEC	OMF resistor 12 Kohm 1W	N.
50	2510133700	Spring		145	DFJ331ACEC	Carbon resistor 330 ohm	
51	2410627400	Seesaw shaft B	N.T.A.	146	DPJ560ACEC	Carbon resistor 560 ohm	1/4W
52	2411711000	Cross bearing		147	DPJ152ACEC	Carbon resistor 1.5 Kohm	
53	2410622200	Shaft		148	W020000CEC	Bridge diode	1/4W
54	2410622201	Shaft	D1	149	RD24E00CEC	Zener diode	
55	2510133300	Spring		150	4807800CEC	Condenser	N.T.A.
56	2412320700	Return arm	D2	151	HRM103ACEC	Condenser	
57	3138700CEC	Operating plate		152	FRM103ACEC	Condenser	N.T.A.
58	2411202200	Link A	C1	153	4356200CEC	Condenser	
59	4813300CEC	Link B		154	4795000CEC	Condenser	E. AE.
60	4788900CEC	Spring		155	VRE477ACEC	Electrolytic condenser	
61	2630700300	Magnet	C2	156	VRE476ACEC	Electrolytic condenser	470µF 35V
62	2420321200	Washer		157	4234200060	Fuse	
63	4789800CEC	Steel ball	C3	158	4234200024	Fuse	N.T.A.
64	2410616800	Shaft		159	4780600CEC	Shield PCB	
65	2412020700	Switch arm		160	0400102950	Neon lamp PCB assy.	E.T.A.C/U.AE.
66	2510133500	Spring	N.	161	4839600CEC	Neon lamp PCB assy.	
67	4788100CEC	Tonearm fixing plate assy		162	4226204360	Neon lamp PCB	N.
68	2420115201	Screw	N.T.A.	163	4839400CEC	Neon lamp PCB	
69	2412412800	Cam		164	4612920795	Neon lamp	N.
70	2510133800	Spring		165	XB1183ACEC	OMF resistor 18 Kohm 1W	
71	4777801CEC	Slide guide A	C/U.	166	FRM103ACEC	Condenser	N.T.A.AE. C/U.
72	3135000CEC	Slide lever		167	5857033040	Transistor 2SD 330D	
73	4798700CEC	Cushion		168	5857033050	Transistor 2SD 330E	E.T.A.C/U.AE.
74	4777900CEC	Slide guide B	E.T.A.C/U.AE.	169	4497500CEC	Insulation sheet	
75	4792000CEC	Plate assy.		170	4639600CEC	Bushing	N.
76	4778000CEC	Link (L)		171	4821700CEC	PCB assy.	
77	4786200CEC	Lever A assy.	N.	172	4819600CEC	PCB	N.T.A.AE. C/U.
78	4783500CEC	Screw		173	2096400CEC	Turntable platter mat	
79	4792500CEC	Spring		174	2096401CEC	Turntable platter mat	N.T.A.AE. C/U.
80	4772100CEC	Link (S)	C/U.	175	4310000CEC	45 rpm adapter	
81	4773900CEC	Connecting plate		176	4834400CEC	Guide	C/U. AE. C/U. AE.
82	4805800CEC	Spring		177	4784900CEC	Subweight	
83	4798600CEC	Spring	E. AE.	178	2290411001	Pad	N, E, T, A C/U, AE
84	4784300CEC	Spring		179	4835900CEC	Cabinet badge	
85	4773300CEC	Lever (A)		180	3166100CEC	Voltage selector	N, E, T, A C/U, AE
86	4778100CEC	Link (R)	N.	181	4690500CEC	Plug conversion	
87	3133800CEC	Tonearm support		182	3165903CEC	Carton box	
88	4562301CEC	Tonearm support rubber	N, E, T, A C/U, AE	183	3165803CEC	Carton box	N, E, T, A C/U, AE
89	4772100CEC	Lift bar		184	2092103CEC	Styrol pad right side	
90	4427000CEC	Lifter spring		185	2092200CEC	Styrol pad left side	
91	4772200CEC	Adjusting screw	N.E.T.A.AE. C/U.	186	4840600CEC	Owner's manual	
92	4772000CEC	Actuator					
93	4534400CEC	Tonearm rest assy.					
94	4771800CEC	Rest arm					
95	4805201CEC	Antiskating knob					
96	4774300CEC	Point					
97	4772300CEC	Antiskating lever					
98	4774400CEC	Washer					
99	4788700CEC	Antiskating spring					
99	3164201CEC	Tonearm assy.					
99	3164200CEC	Tonearm assy.					

## (6) SCREWS, WASHERS AND NUTS

Ref. No.	Parts No.	Description	Ref. No.	Parts No.	Description
201	2016200CEC	⊗ Pan head Sems screw with spring washer M3x20	214	2146200CEC	Plain washer 3.2φx10φx1t
202	2026200CEC	⊗ Pan head screw M4x30	215	2156200CEC	⊗ Pan head Sems screw M2x5
203	2036200CEC	⊗ Pan head taptite screw B φ2.6x6 with plain washer	216	2166200CEC	Plain washer 4.6φx12φx0.3t
204	2046200CEC	⊗ Pan head taptite screw B (Bronze) φ2.6x6	217	2176200CEC	Plain washer 7.2φx12φx0.5t
205	2056200CEC	⊗ Brazier head taptite screw B φ3x8	218	2186200CEC	Nylon washer 3φx12φx1t
206	2066200CEC	⊗ Brazier head taptite screw B (Bronze) φ3x8	219	2196200CEC	Nylon washer 6.2φx12φx1t
207	2076200CEC	⊗ Brazier head taptite screw B φ3x10	220	2206200CEC	Spring washer 2.6φ
208	2086200CEC	⊗ Brazier head taptite screw B φ3x12	221	2216200CEC	Spring washer 3φ
209	2096200CEC	⊗ Brazier head taptite screw B φ3x20	222	2226200CEC	E type washer 2φ
210	2106200CEC	⊗ Brazier head taptite screw B φ3x8 with plain washer	223	2236200CEC	E type washer 3φ
211	2116200CEC	⊗ Brazier head taptite screw B φ3x10 with plain washer	224	2246200CEC	E type washer 4φ
212	2126200CEC	Plain wahser 3φx8φx1t	225	2256200CEC	Stop ring CSTW-2.4
213	2136200CEC	Plain washer 3φx16φx1t	226	2266200CEC	Stop ring CSTW-3
			227	2276200CEC	Hexagon nut M3
			228	2286200CEC	Hexagon nut M7
			229	2296200CEC	⊗ Brazier head tapping screw (class 1) φ3x6
			230	2306200CEC	⊗ Pan head screw M3x4

## (7) POWER SUPPLY PRINTED CIRCUIT BOARD



## (8) DC VOLTAGES FOR EACH IC PIN

## IC-1

IC PIN NO.	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲
DC VOLTAGE	0.8V	NC	24.0V	0V	8.3V	22.4V	22.4V	0.93V	0V	70mV	NC	2.5V	2.5V	2.5V	2.5V	NC			

## IC-2

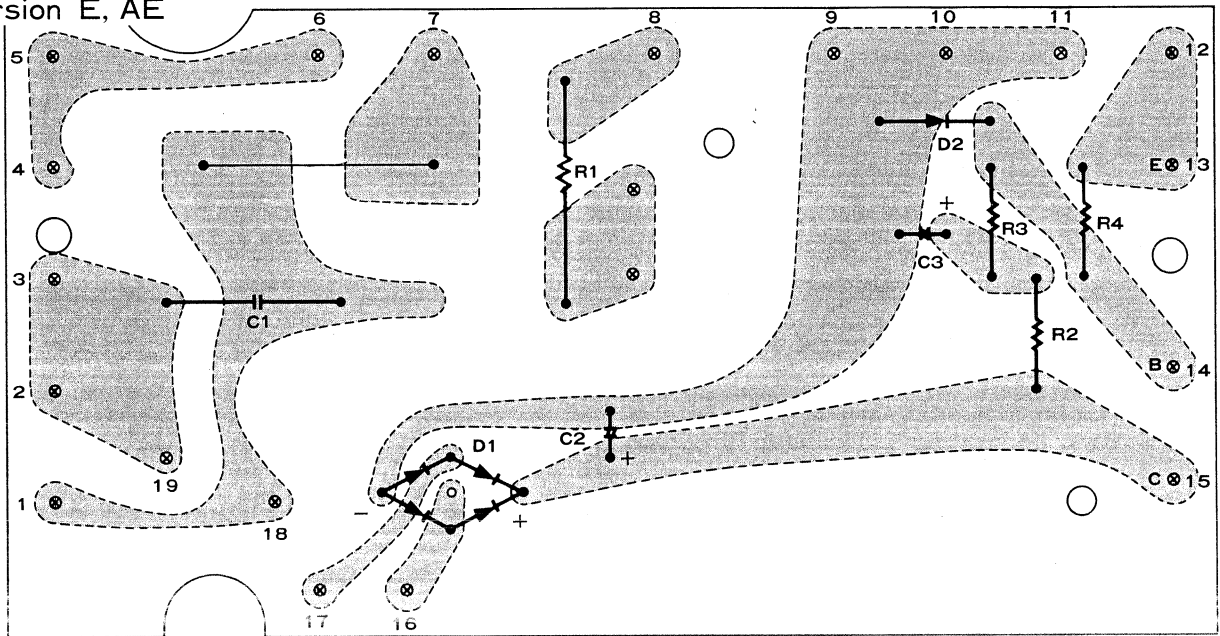
IC PIN NO.	②	③	⑦	⑧	⑨	⑩	⑬	⑮
DC VOLTAGE	1.8V	2.7V	4.1V	8.2V	0V	3.2V	18mV	8.3V

## IC-3

IC PIN NO.	②	③	④	⑤	⑥	⑦	⑧
DC VOLTAGE	8.2V	8.3V	0V	3.6V	3.5V	12.2V	24.0V

## IC-4

Version E, AE



## (8) SERVO CONTROLLER CIRCUIT DIAGRAM

